

Remarks

Claims 1-8 are presently pending. Claims 1-8 have been rejected.

The Examiner has rejected claims 1-8 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the Examiner asserts that the phrase "typical operation" in claim 1 is undefined therein and is therefore indefinite. The Examiner contends that the term "analogous" in claim 5 is confusing since it is not clear whether the speed gear is the same as, or is different from, the input gear. Also, the Examiner maintains that the phrase "reverse planetary motion" is indefinite because such "forward" motion has not previously been defined. Furthermore, the Examiner asserts that the phrase "the tendency of device" in claim 7 is unclear and confusing.

With regard to claim 1, the phrase "typical operation" is clearly defined by the context in which it is used and thus is not indefinite. Specifically, "typical operation" of the claimed device occurs when the input gear shaft drives the upper motion transfer gear, the upper motion transfer gear mesh drives the upper variance determining gear, the upper variance determining gear shaft drives the

lower variance determining gear, the lower variance determining gear mesh drives the lower motion transfer gear, and the lower motion transfer gear shaft drives the output gear and thereby drives the driven load. In addition, claim 5 has been deleted so that the phrases "analogous to the input gear" and "analogous to the output gear" have been deleted. Furthermore, claims 1, 2 and 5 have been amended so that terms "planetary motion" recited therein are now "forward planetary motion". Hence, the phrase "reverse planetary motion" in claim 5 is not indefinite since it describes planetary motion in the opposite direction as the "forward planetary motion" defined in claim 1 and mentioned in claims 2 and 5. Moreover, claim 7 has been amended to clarify the meaning of the term "the tendency of the device to lower the gear ratio between the input gear and output gear of the input/output gear set." In particular, the recited tendency results from forward planetary motion of the lower variance determining gear around the lower motion transfer gear of the input/output gear set. Claims 1-8 now fully comply with the requirements of 35 U.S.C. § 112, second paragraph.

Reconsideration and withdrawal of the rejection are respectfully requested. Please remove the rejection of claims 1-8 under 35 U.S.C. § 112, second paragraph, and enter the allowance thereof.

The Examiner has rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 2,330,375 to Orner ("Orner"), U.S. Patent No. 5,645,506 to Mleczko ("Mleczko") or U.S. Patent No. 1,859,347 to Sullivan ("Sullivan"). The Examiner states that the Applicant appears to be claiming a continuously variable transmission ("CVT") with a planetary gear set 10 and an adjustable braking device 16. Also, the Examiner states that the braking device is variable to cause a variable reaction force on the planetary carrier 27, input is provided on one of the sun gears 28 and output is taken from sun gear 30. The Examiner notes that there is no ring gear and that the planet gears 32 and 34 are joined to rotate together. The Examiner maintains that this type of transmission has been around since at least 1932, as shown by Sullivan.

The Examiner asserts that Sullivan illustrates a planetary CVT with an input provided at sun gear 21 and output taken at from sun gear 22. In addition, the Examiner contends that planet gears 24 on shafts 23 of planet carrier 18 provide a variable reaction force by the adjustment of valve 34 of hydraulic brake 32, which is connected to the carrier via a pair of gears 25 and 26. The Examiner acknowledges that Sullivan does not disclose a pair of gears driving input shaft 13 or output shaft 15. However, the Examiner concludes that such gears would have been an obvious

variation of the device of Sullivan in case more speed reduction was desired.

Furthermore, the Examiner maintains that Mleczko teaches a planetary CVT with an input shaft 14, an output shaft 16, an input sun gear 44, an output sun gear 52, a fluid pump 74 and 76 for variably constraining the rotation of carrier 34 and 36. Also, the Examiner asserts that fluid flow through the pump is controlled to regulate the speed ratio of the transmission. The Examiner contends that planet gears 58 and 64 engage the sun gears and provide power rotation thereof. The Examiner maintains that output can alternatively be taken from shaft 88, which is driven by gears 84 and 86 from the output shaft 16. The Examiner acknowledges that Mleczko does not disclose a pair of gears driving the input shaft. However, the Examiner concludes that it would have been obvious to one of ordinary skill in this art to provide them for situations that require greater speed reduction.

Finally, the Examiner asserts that Orner shows a planetary CVT with fluid pump control of the carrier 2 and 3. The Examiner contends that input is provided at sun gear 17, output is taken from sun gear 20 and pump gears 100 and 101 provide a variable reaction force to regulate the speed ratio of the transmission. The Examiner acknowledges that Orner does not teach pairs of gears driving the input and output

shafts 15 and 16. However, the Examiner concludes that it would have been obvious to one of ordinary skill in this art to provide them in case further speed reduction was required.

This rejection is respectfully but strenuously traversed for the reasons set forth in detail below.

In general, three basic criteria must be satisfied in order to establish a *prima facie* case of obviousness (M.P.E.P. § 706.02(j)). First, the reference or combination of references must teach or suggest all of the claim limitations. Second, there must be a reasonable expectation of success. Third, there must be some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

The rejection fails to satisfy the first criterion of a *prima facie* showing of obviousness. Sullivan, Mleczko and Orner each fails to suggest all of the limitations of the device defined by claim 1. Specifically, there is no suggestion in any of the three references of a device comprising a) an upper motion transfer gear mounted coaxial with a central axis and shaft linked to an input gear for rotation therewith, b) a lower motion transfer gear mounted coaxial with a central axis and shaft linked to the output gear for rotation therewith or c) a variance gear mounted

coaxial with a central axis but not linked with either the input or output gear along said central axis, such that during typical operation the input gear shaft drives the upper motion transfer gear, the upper motion transfer gear mesh drives an upper variance determining gear, the upper variance determining gear shaft drives a lower variance determining gear, the lower variance determining gear mesh drives the lower motion transfer gear, and the lower motion transfer gear shaft drives the output gear and thereby drives the driven load. The Examiner does not indicate where the cited references suggest any of these limitations, all of which are recited in claim 1. In fact, it is apparent that the transmissions described in Sullivan, Mleczko and Orner have different internal mechanisms than that of the device of the present invention.

Furthermore, the rejection also fails to satisfy the second criterion of a *prima facie* showing of obviousness. Based on the teachings of Sullivan, Mleczko and Orner, one of ordinary skill in the art would not have a reasonable expectation of success in arriving at the present invention. The structural differences between them mentioned previously result in certain operational advantages of the present invention over the transmissions of Sullivan, Mleczko and Orner. First and foremost, the gear ratio in the device of claim 1 is controlled by more than the resistance that is applied against the output gear. It is also controlled by

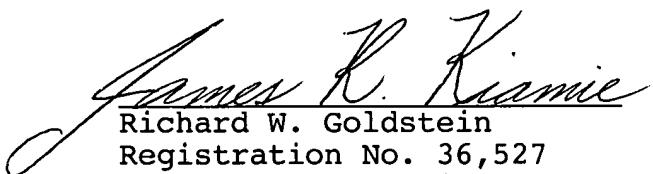
the speeds of the output gear and the input gear. Thus, the present device allows for a much broader range of gear ratios than do the transmissions of the prior art. For example, the gear ratio of the present device not only decreases when resistance is applied against the output gear; the gear ratio range also increases when a vehicle in which the device is positioned increases speed. Consequently, superior fuel mileage and available continuous torque are realized. Finally, the device of claim 1 provides more effective and energy-efficient control over the changing of the gear ratio than the prior art since the middle motion transfer assembly receives a force opposed to its rotation and transfers a rotation force.

Therefore, the disclosures of Sullivan, Mleczko or Orner do not render obvious the invention defined by claim 1. Claims 2-8 depend directly or indirectly from claim 1 and therefore contain all of its limitations. Consequently, claims 1-8 are patentably distinct from each of the cited references.

Reconsideration and withdrawal of the rejection are respectfully requested. Please remove the rejection of claims 1-8 under 35 U.S.C. § 103(a), and enter the allowance thereof.

In view of the foregoing amendments and remarks, reconsideration and allowance of the pending claims are respectfully solicited. Please remove the rejection of claims 1-8 under 35 U.S.C. § 112, second paragraph, and the rejection of claims 1-8 under 35 U.S.C. § 103(a), and enter the allowance thereof. The Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted, Reg. No. 53,120

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